ABSTRACT

The present invention aims to provide a hydrogen generating method for generating hydrogen-containing gas little contaminated with nitrogen, CO, etc., by decomposing fuel containing an organic compound at low temperature while requiring the supply of no or little electric energy from an external source, and a hydrogen generating system based on the method.

The hydrogen generating method provided by the present invention comprises providing a fuel electrode (12) in contact with one surface of a partition membrane (11), supplying fuel containing an organic compound and water to the fuel electrode (12), providing an oxidizing electrode (14) in contact with the other surface of the partition membrane (11), and supplying an oxidizing agent to the oxidizing electrode (14), wherein fuel containing the organic compound is decomposed and hydrogen is generated on the fuel electrode (12). A hydrogen generating system based on the method can work under three different conditions: (a) it works under open-circuit condition where no electric energy is withdrawn to outside from a hydrogen generating cell (10) constituting the hydrogen generating system, and no electric energy is supplied from outside to the hydrogen generating cell; (b) it works under a condition where electric energy is withdrawn from the hydrogen generating cell with the fuel electrode (12)

serving as a negative electrode and the oxidizing electrode (14) as a positive electrode; and (c) it works under another condition where external electric energy is provided to the hydrogen generating cell with the fuel electrode (12) serving as cathode and the oxidizing electrode (14) as anode.